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EXAMINER	
CANTELMO, GREGG	
ART UNIT	PAPER NUMBER
1745	13

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/739,483	FITTER, JOHAN CHRISTIAAN	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,10-17,19,20 and 22-28* is/are pending in the application.

4a) Of the above claim(s) _ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,10-17,19,20 and 22-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 19, 2003 has been entered.

Response to Amendment

2. In response to the amendment received May 19, 2003:

a. Claims 18 and 21 have been cancelled as per Applicant's request;

b. Claims 1-6 and 10-17, 19-20 and 22-28 are pending;

c. The 112 rejections have been withdrawn;

d. The prior art rejections stand except for the 102 rejection of Davis which has been withdrawn;

e. The double patenting rejections stand.

Claim Objections

2. Claims 22 and 26 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 22 and 26 fail to provide further structure to the electrochemical cell and are only drawn to defining the charging cycle which external of the electrochemical cell.

3. Applicant is advised that should claim 22 be found allowable, claim 26 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 6, 10-13, 15-17, 20 and 22-27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-302 785 A (JP '785).

JP '785 discloses an electrochemical cell comprising opposed positive and negative electrodes, an electrolyte in ionic contact with the electrodes and a charge dependent impeding means (fatty acid film) in contact with the electrolyte. A fatty acid, being the charge dependent impeding means is active when overcharging occurs

(abstract) and suppresses hydrogen generation. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen. Applicant is reminded that claim 1 is drawn to an electrochemical cell and not a method of operating the electrochemical cell. Thus the aspects of claim 1 which have been accorded patentable weight are only those limitations which define the cell alone and not process conditions applied to the cell (as applied to claim 1).

A fatty acid film being an example of a charge dependent means und (as applied to claims 1 and 2).

JP '785 is drawn to a method of reducing liquid loss in an electrochemical cell having opposed positive and negative electrodes, and electrolyte in contact with the electrodes and being disposed to cause electrolysis of the electrolyte when a sufficient amount of potential is applied across the electrodes, the method including the steps of providing a charge dependent impeding means (fatty acid) in fluid communication with the negative electrode for impeding the gassing charge, the charge dependent impeding means activated by the overvoltage (charge corresponding to the gassing charge) and is not active below the gassing charge, applying a charging cycle to the cell wherein the fatty acid is activated in response to an overvoltage to reduce the generation of hydrogen gas.

The fatty acid is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). A fatty acid, being the charge dependent impeding means is active when overcharging occurs (abstract) and suppresses hydrogen generation. The fatty acid film (current impeding

medium) suppresses hydrogen generation (thus reduces electrolysis) and reduces the current in the cell between the electrodes. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen (abstract as applied to claim 6).

The fatty acid also present in the negative electrode, forms a film on the active material surface of the negative electrode thus acting as a barrier or impediment for gas evolution from the negative electrode (abstract as applied to claim 10).

The gas bubbles are hydrogen bubbles and the ions attracted to the negative electrode would be hydrogen ions (abstract as applied to claim 11).

JP '785 discloses an electrochemical cell comprising opposed positive and negative electrodes, an aqueous electrolyte in ionic contact with the electrodes, the electrochemical cell further comprises a fatty acid (charge dependent impeding means), that provides, through contact with the electrolyte, an impediment of barrier over a surface of the negative electrode when a sufficient potential is applied across the electrodes to cause electrolysis of the electrolyte, the impediment or barrier providing at least one of: a reduction in the flow of current between the electrodes, a reduction in the flow of ions to the negative electrode, or a reduction in the flow of gas bubbles from the negative electrode. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen (abstract as applied to claim 12).

The fatty acid is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). Hydrogen is clearly generated by the cell (see abstract) and thus the potential applied to the cell is

one which causes hydrogen generation and further electrolysis of the electrolyte (abstract). The fatty acid film, which is formed on the active material of the negative electrode reduces the flow of gas bubbles from the negative electrode. The fatty acid film (current impeding medium) suppresses hydrogen generation (thus reduces electrolysis) and reduces the current in the cell between the electrodes (abstract as applied to claim 12).

When a overvoltage is applied to the electrodes the fatty acid film formed on the active material of the negative electrode traps gas bubbles evolving from the negative electrode (abstract as applied to claim 13).

The battery is a rechargeable lead acid battery used in automobiles which is a secondary battery (paragraphs [0002] and [0003] as applied to claim 15).

Adding 0.5-1% of stearic acid does not negatively affect the cycling of the cell (paragraph [0012] as applied to claim 16).

Adding 0.5-1% of stearic acid to the cell provides improved cycling performance of the cell compared to a cell having more than 1% stearic acid (paragraph [0012] as applied to claim 17).

The battery is a lead acid battery and has a flow of ions conventionally used in lead acid battery cells (as applied to claim 20).

Claims 22 and 26 fail to further limit the device of claim 1 and are drawn to the charging cycle. There are no further structural limitations set forth in either of claim 22 or 26 with respect to the statutory class of invention, a product. Thus the rejection of

claim 1 applies to claims 22 and 26 as discussed above, incorporated herein (as applied to claims 22 and 26).

The fatty acid film formed on the negative electrode forms a layer through which ions must traverse to reach the negative electrode and thus impedes the flow of ions to the negative electrode (as applied to claim 23).

The fatty acid reduces hydrogen gas emission from the cell (as discussed above and applied to claim 24).

The fatty acid impedes the electrolysis of the electrolyte and reduces hydrogen generation (as discussed above and applied to claim 25).

The battery is a lead acid battery (as applied to claim 27).

Response to Arguments

6. Applicant's arguments filed May 19, 2003 have been fully considered but they are not persuasive.

Applicant argues that the fatty acid is active throughout the charging phases whereas the current impeding medium of the present invention is inactive during the charging phase. This argument is not persuasive.

First this medium is actually active for at least a portion of the charging phase as positively recited in the claims. The claims recites that the charge dependent medium is activated by the charging portion corresponding to the gassing charge and thus would appear to be active during the charging phase. Thus this argument appears to contradict the limitations explicit in the claims and is not persuasive.

Additionally, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the current impeding medium of the present invention is inactive during the charging phase) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to process conditions in the claims, while intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See also MPEP § 2114.

The manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed

apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Applicant has not established clear evidence that the instant claims are structurally different from the prior art of record.

Claim Rejections - 35 USC § 102

7. Claims 1-6, and 10-17, 19-20 and 22-27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 50-091728 (JP '728).

JP '728 discloses an electrochemical cell comprising opposed positive and negative electrodes, an electrolyte in ionic contact with the electrodes and a charge dependent impeding means, dodecyldimethylbenzylammonium chloride, in fluid communication with the negative electrode for impeding gassing charge. Hydrogen is generated by the cell (abstract). The ammonium compound, being the same material exemplified and disclosed in the instant application will provide the same functions, absent clear evidence to the contrary (as applied to claim 1).

Furthermore, Applicant is reminded that claim 1 is drawn to an electrochemical cell and not a method of operating the electrochemical cell. Thus the aspects of claim 1 which have been accorded patentable weight are only those limitations which define the cell alone and not process conditions applied to the cell (as applied to claim 1).

The charge dependent impeding means is dodecyldimethylbenzylammonium chloride (as applied to claims 2 and 3).

The additive is added in various weight percents (see page 142 of the reference) which overlap the additive range of claims 4 and 5.

JP '728 is drawn to a method of reducing liquid loss in an electrochemical cell having opposed positive and negative electrodes, and electrolyte in contact with the electrodes and, the method including the step of introducing into the cell a charge dependent impeding means, dodecyldimethylbenzylammonium chloride. The ammonium compound of JP '728 is the same as the materials of the instant application and has the same inherent properties and functionality, absent clear evidence to the contrary.

The dodecyldimethylbenzylammonium chloride is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). Hydrogen is clearly generated by the cell and thus the potential applied to the cell is one which causes hydrogen generation and further electrolysis of the electrolyte (abstract). The dodecyldimethylbenzylammonium chloride (charge dependent impeding means) suppresses hydrogen generation (abstract as applied to claim 6).

The dodecyldimethylbenzylammonium chloride also present in the negative electrode, forms a film on the active material surface of the negative electrode thus acting as a barrier or impediment for gas evolution from the negative electrode (abstract as applied to claim 10).

The gas bubbles are hydrogen bubbles and the ions attracted to the negative electrode would be hydrogen ions (abstract as applied to claim 11).

JP '728 discloses an electrochemical cell comprising opposed positive and negative electrodes, an aqueous electrolyte in ionic contact with the electrodes, the electrochemical cell further comprising a charge dependent impeding means, dodecyldimethylbenzylammonium chloride The ammonium compound of JP '728 is the same as the materials of the instant application and has the same inherent properties and functionality, absent clear evidence to the contrary (abstract as applied to claim 12).

The dodecyldimethylbenzylammonium chloride is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). Hydrogen is clearly generated by the cell and thus the potential applied to the cell is one which causes hydrogen generation and further electrolysis of the electrolyte. The dodecyldimethylbenzylammonium chloride, which is formed on the active material of the negative electrode reduces the flow of gas bubbles from the negative electrode. The dodecyldimethylbenzylammonium chloride (charge dependent impeding means) suppresses hydrogen generation (abstract as applied to claim 12).

Since the charge dependent impeding means, dodecyldimethylbenzylammonium chloride, is the same material as that disclosed in the instant application it is expected to have the same effect on reducing water loss, reducing gas evolution, and having a head for adsorbing to the negative electrode and a and tail arrangement to trap gas bubbles (abstract as applied to claims 12-14).

The battery is a recharging battery (has charging and discharging functions) and is exemplary of a secondary battery (abstract as applied to claim 15).

The charge dependent impeding means is dodecyldimethylbenzylammonium chloride which is a quaternary ammonium compound. Since this material is an exemplary current impeding medium as taught by the instant application, it is expected that the same material used in the same manner will have the same properties and characteristics including: being a charge dependent impeding means which does not negatively affect a discharging cycle (claim 16); and being a charge dependent impeding means which provides improved cycling performance of the cell compared to a cell that does not have the additive (abstract), noting further that the manner in which the cycling is improved is undefined since the instant claim does not provide a standard for comparison (claim 17).

The cell has an inherent threshold potential and given that the medium of JP '728 is a material exemplified by the instant application as a charge dependent impeding means, the dodecyldimethylbenzylammonium chloride medium is a barrier or impediment as discussed above and is self regulating. Thus the greater the amount of electrolysis, the greater the number of gas bubbles trapped and the more effective the impediment or barrier to the flow of ions to the negative electrode, thereby the more electrolysis is reduced, and vice versa (as applied to claim 19).

The battery is a zinc battery (as applied to claim 20).

Claims 22 and 26 fail to further limit the device of claim 1 and are drawn to the charging cycle. There are no further structural limitations set forth in either of claim 22 or 26 with respect to the statutory class of invention, a product. Thus the rejection of

claim 1 applies to claims 22 and 26 as discussed above, incorporated herein (as applied to claims 22 and 26).

The ammonium compound formed on the negative electrode forms a layer through which ions must traverse to reach the negative electrode and thus impedes the flow of ions to the negative electrode (as applied to claim 23).

The ammonium compound reduces hydrogen gas emission from the cell (as discussed above and applied to claim 24).

The ammonium compound impedes the electrolysis of the electrolyte and reduces hydrogen generation (as discussed above and applied to claim 25).

The battery is a zinc battery (as applied to claim 27).

Response to Arguments

8. Applicant's arguments filed May 19, 2003 have been fully considered but they are not persuasive.

Applicant argues that JP '728 fails to teach or suggest that dodecyldimethylbenzylammonium chloride can be used as a current impeding medium for reducing electrolysis when a potential sufficient to cause electrolysis is applied to the electrochemical cell.

While intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art

structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See also MPEP § 2114.

The manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

The prior art uses the same compound in an electrochemical cell to improve the charging and discharging characteristics of the cell. Since the compound is the same material, there is an expectation that the compound will function in the same manner as recited in the instant claims. Applicant's arguments fail to clearly show that the prior art ammonium compound does not function in the same manner. Thus the prior art rejection stands.

See also MPEP § 2112.

Claim Rejections - 35 USC § 102

9. Claim 28 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 01-267965-A (JP '965).

JP '965 is drawn to a lead acid battery comprising opposed positive and negative electrodes, an aqueous electrolyte, and a quaternary ammonium compound in fluid communication with the cell components. The prior art uses the same compound in an electrochemical cell to improve the charging and discharging characteristics of the cell. Since the compound is the same material, there is an expectation that the compound will function in the same manner as recited in the instant claims.

Response to Arguments

10. Applicant's arguments with respect to claim 28 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-3, 6, 10-17 and 19-28 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11, 15 and 16 of U.S. patent Application Publication No. 2002/0038765 (US Pub. '765). Although the conflicting claims are not identical, they are not patentably distinct from each other.

US Pub. '765 claims an electrochemical cell comprising a positive electrode, an opposed negative electrode, and an aqueous electrolyte for use in a battery cell, the electrolyte being in ionic contact with the negative electrode. An additive material is provided for inhibiting electrodeposition on the negative electrode (claim 11). The additive material is recited in claim 16 which is the same materials disclosed and claimed in the instant application as the current reducing additive. Since these materials are the same, they are expected to have the same inherent properties (as applied to instant claims 1-3). The limitations of claims 11 and 16 anticipate the limitations of instant claims 1-3.

US Pub. '765 provides an electrochemical cell having a step of providing n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate to an electrochemical cell having an electrolyte and electrodes. Since these materials are the same, they are expected to have the same inherent properties (claims 11 and 16 as applied to instant claims 6 and 10-11).

The limitations of claims 11, 15, and 16 anticipate the limitations of instant claims 6-11.

US Pub. '765 claims an electrochemical cell comprising opposed positive and negative electrodes and aqueous electrolyte in ionic contact with the electrodes and a current reducing additive, n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate (claim 16). The electrolyte is engendered with a deposition modifying agent, n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate, for inhibiting dendritic electrodeposition on the negative electrode. The modifying agent being the same as the current reducing additive of the instant application is arranged in the electrolyte as in the instant application and is held to be arranged to adhere or adsorb to the negative electrode and form an impediment or barrier over a surface of the negative electrode (claims 11 and 16 as applied to claim 12). Since these materials are the same, they are expected to have the same inherent properties (claims 11 and 16 as applied to instant claim 13 and 14).

The battery is a secondary battery (claim 14 as applied to instant claims 15-17). The current impeding medium is n-alkyl dimethyl benzyl ammonium chloride. Since this material is an exemplary current impeding medium as taught by the instant application, it is expected that the same material used in the same manner will have the same properties and characteristics including: being a current impeding medium which does not negatively affect a discharging cycle (claim 16 as applied to instant claim 16); and being a current impeding medium which provides improved cycling performance of the cell, noting further that the manner in which the cycling is improved is undefined since

the instant claim does not provide a standard for comparison (claim 16 as applied to instant claim 17).

The cell has an inherent threshold potential and given that the medium of US Pub. '765 is a material exemplified by the instant application as a current impeding medium, the n-alkyl dimethyl benzyl ammonium chloride medium is a barrier or impediment as discussed above and is self regulating. Thus the greater the amount of electrolysis, the greater the number of gas bubbles trapped and the more effective the impediment or barrier to the flow of ions to the negative electrode, thereby the more electrolysis is reduced, and vice versa (claim 16 as applied to instant as applied to claim 19).

The battery has a flow of ions conventionally used in lead acid battery cells and other electrochemical cells (claim 11 as applied to instant claim 20).

Claims 22 and 26 fail to further limit the device of claim 1 and is drawn to the charging cycle. There are no further structural limitations set forth in either of claim 22 or 26 with respect to the statutory class of invention, a product. Thus the rejection of claim 1 applies to claims 22 and 26 as discussed above, incorporated herein (as applied to claims 22 and 26).

The ammonium compound formed on the negative electrode forms a layer through which ions must traverse to reach the negative electrode and thus impedes the flow of ions to the negative electrode (as applied to claim 23).

The ammonium compound reduces hydrogen gas emission from the cell (as discussed above and applied to claim 24).

The ammonium compound impedes the electrolysis of the electrolyte and reduces hydrogen generation (as discussed above and applied to claim 25).

The difference between instant claim 12 and claim 11 of US Pub. '765 is that claim 11 of US Pub. '765 does not explicitly recite that the aqueous electrolyte is in ionic contact with both the negative and positive electrodes.

In order for the electrochemical cell to effectively operate it is imperative that the electrolyte be in ionic contact with both the positive and negative electrodes. These three components when in ionic contact provide for ion mobility between the electrodes.

The motivation for providing the electrolyte in ionic contact with both the negative and positive electrodes is that it enables ionic mobility between the opposed electrodes.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the claims of US Pub. '765 by having the electrolyte in ionic contact with both the negative and positive electrodes since it would have enabled ionic mobility between the opposed electrodes through the electrolyte of an electrochemical cell.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00

a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gregg Cantelmo
Patent Examiner
Art Unit 1745

gc

July 21, 2003